Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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1108P Folfirinox in the treatment of advanced gastroenteropancreatic neuroendocrine carsinomas

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Background: Neuroendocrine neoplasms most commonly arise from the gastroenteropancreatic (GEP) system. The WHO classification of digestive system tumors describes four main types: Neuroendocrine tumor (NET) grades 1-3 and neuroendocrine carcinoma (NEC). NECs have an aggressive biology and are often diagnosed in an advanced stage associated with poor prognosis. First-line palliative chemotherapy is commonly carboplatin or cisplatin in combination with etoposide, while in second-line capecitabine-temozolomide, FOLFIRI or FOLFOX regimens are used. Few prospective studies have been done and data on efficacy is scarce. We conducted a retrospective study of patients with GEP-NEC treated with FOLFIRINOX, evaluating response to treatment and survival.

Methods: Patients diagnosed with GEP-NEC at three different centers and treated with FOLFIRINOX were identified and included in the study. Baseline demographics were collected at start of FOLFIRINOX. The Response Evaluation Criteria in Solid Tumors (RECIST v1.1) criteria were used to assess the treatment response at computed tomography (CT).

Results: Thirty-seven patients between 2014 and 2020 were identified and included in the study. Median age was 53 years and female/male ratio was 1:1. Most of the patients were in WHO performance status 0 or 1 (86%). The most common primary tumor sites were colon (30%), pancreas (27%), oesophagus (10%)and rectum (10%). The median Ki67 was 80% (range 22%, 100%). Out of 37 patients treated, 8 (22%) patients received FOLFIRINOX as first-line treatment, 21 (57%) patients as second line treatment and 8 patients as third-line treatment or later. Overall response rate (ORR) (all lines) was 46% (17/37); i.e. complete response 0% (0/37), partial response 46% (17/37), stable disease 22% (8/37) and progressive disease 22% (8/37). Median overall survival (mOS) was 17,8 months (CI: 11,4 − 23,3). Median progression free survival from first course of FOLFIRINOX was 5,4 months (CI: 3,5 − 6,9).

Conclusions: FOLFIRINOX is an active regimen in the treatment of GEP-NEC and may be considered in the treatment of advanced disease. Prospective randomized trials are needed to compare efficacy among different chemotherapy regimens.

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1109P The psychological impact of COVID-19 pandemic on patients with NETs: Between resilience and vulnerability

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Background: The COVID-19 pandemic has dramatically changed lifestyles and quality of life (QoL) of the global population. Little is known regarding the psychological impact of the COVID-19 outbreak on patients with gastroenteropancreatic (GEP) or bronchopulmonary (BP) neuroendocrine tumors (NETs).

Methods: We prospectively evaluated seven specific constructs (depression, anxiety, stress, QoL, NET-related QoL, patient-physician relationship, psychological distress) by using validated screening instruments including the Depression anxiety stress scale-21 (DASS-21), the EORTC QLQ-C30, the EORTC QLQ GI.NET21, the patient doctor relationship questionnaire 9 (PDRQ9) and the Impact of event scale-revised (IES-R). Mental symptoms and concerns of patients with any stage, well-differentiated GEP or BP-NET were surveyed twice, during the plateau phase of the first (W1) and second epidemic waves (W2) in Italy.

Results: We enrolled 197 patients (98 males) with a median age of 62 years (G1/G2: 96%; pancreas: 29%; small bowel: 25%; active treatment: 38%). At W1, the prevalence of depression, anxiety and stress was 32%, 36% and 26% respectively. The frequency of depression and anxiety increased to 38% and 41% at W2, with no modifications in the frequency of stress. By ordinal logistic regression analysis, female patients showed more severe forms of stress at W1 (OR=0.45±0.14; p=0.01), while the educational status was associated with the levels of anxiety at both W1 (OR=1.33±0.22; p=0.07) and W2 (OR=1.45±0.26; p=0.03). An improvement of the physical (p=0.03) and emotional functioning domains (p=0.001) was observed over time. Both nausea/vomiting (p=0.0002), appetite (p=0.02), treatment-related symptoms (p=0.005), disease-related worries (p=0.0006) and sexual function (p=0.02) improved between W1 and W2, suggesting that NET patients were able to cope with the perturbations caused by the pandemic. No difference was seen between W1 and W2 in the mean score (>4/5) of the PDRQ9. By IES-R, post-traumatic stress disorder was observed in 53% of patients at W2.

Conclusions: The implementation of psychological interventions within NET clinics might favor functional coping strategies, attenuating the psychological distress caused by the COVID-19 pandemic.

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1110P COVID-19 pandemic impact on healthcare professionals treating patients with neuroendocrine tumors (NET): An international NET CONNECT survey

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Background: COVID-19 pandemic has added a degree of complexity in the management of patients with NET. We have little information about the real impact of COVID-19 in current practice. The aim of this study is to capture if and how COVID-19 is changing the way in which healthcare professionals treat NET patients.

Methods: NET CONNECT taskforce designed an online anonymous survey addressing different aspects of NET. Survey was sent to nurses and physicians working in ENETS Centers of Excellence (CoE) and other hospitals with high volume of NET between March 24th and April 27th 2021.

Results: 47 health professionals (47% female, 19% nurses, 72% >20 years of experience) from 37 institutions (79% ENETS CoE, 55% >500 ongoing NET patients; 51% EU, 38% UK, 11% US) completed the survey; 70% of responders worked in areas of high COVID prevalence and 11% tested positive for COVID themselves. According to responders, pandemic affected their relationship with patients (49%). Telemedicine was widely used by 62% and included phone calls (96%), video conference (43%), telemedicine apps (19%) and email (51%). Tumor boards kept their usual schedule (60%), but were held virtually in 79%. Among main patient worries perceived by clinicians were the risk of COVID-19-related complications (64%), difficulties in the management of their disease (74%), or oncological medication (87%). Watch and wait strategies were used more commonly (34%), while surgery was often (55%) delayed.

Somatostatin analogs (SSA) were increasingly used as bridging strategy for delaying surgery (32%), and were self-injected or delivered by home care service in 36% and 49% of cases respectively. Treatment breaks of targeted therapies (17%), PRRT (13%), or chemotherapy (9%) were also proposed. Patients with advanced NET were considered a priority group for vaccination (94%), but not those with resected NET (19%).

Conclusions: COVID-19 pandemic paved the way towards telemedicine in many institutions. While systemic treatments were generally continued, surgical interventions were delayed in 55% of cases. Regarding SSA, home care service or self-injections have been used more frequently. As the pandemic evolves, new data will be needed to design future health policy measures.

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1111P New prognostic frontiers for lung neuroendocrine tumors: An Italian-Spanish multicentric study of 200 cases

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Background: Well-differentiated neuroendocrine tumors of the lung (Lung NET) are classified as typical (TC) and atypical (AC) carcinoids, on the basis of mitotic count and presence of necrosis. However, the identification of prognostic factors, other than TNM stage and histopathological diagnosis of AC versus TC, are still lacking.

Methods: We assessed the association of clinical and pathological data with survival in a multicenter retrospective series of 200 surgically resected lung NET from 8 Italian & 1 Spanish Institutions. Patients data were collected and analysed by SPSS program.

Results: The study population presented a median age of 60 years (13-86), 40.0% presented a male gender, 31.5% were smokers, 31.0% AC, 40.5% left-sided tumors, 36.5% with a peripheral location. I&II TNM stages at diagnosis were present in 84.5% of cases, with 25% nodal positive status. Mitotic count $\geq$2/10 HPF in 31%, necrosis in 17.5%, Ki67 >20% in 8 patients (4%). The population had a median OS of 49 months (0.6-323), and a median PFS of 36.0 months (0.5-323). At Cox univariate regression model, male gender ($p=0.0001$, $p=0.001$), left side ($p=0.001$, $p=0.015$), nodal positive status ($p=0.0001$, $p=0.0001$), advanced TNM stage ($p<0.0001$, $p<0.0001$), mitotic count $\geq$2/10 HPF ($p=0.001$,***p=0.031***), Ki67 >20% ($p=0.017$, $p=0.001$), presence of necrosis ($p=0.001$, ***p=0.04***), and AC histotype ($p=0.0001$, $p=0.006$), correlated with shorter PFS and OS, respectively. Tumoral peripheral location ($p=0.038$) correlated with shorter OS. At Cox multivariate regression analysis, gender (male vs female) ($p=0.0057$), tumor side (left vs right) ($p=0.0118$), advanced stage ($p=0.0206$), a Ki67 >20% and/or a mitotic count >10/10 HPF ($p=0.0109$), and the presence of necrosis ($p=0.0010$) were confirmed as independent prognostic factors in terms of PFS. Gender (male vs female) ($p=0.0127$), tumor side (left vs right) ($p=0.0669$) and advanced stage ($p=0.0208$) were independent negative prognostic factors for OS.

Conclusions: This study confirm the prognostic relevance of TNM stage and of the diagnosis of AC, to stratify NET patients. Additionally, our analysis suggests a potential prognostic value for new clinical and pathological features, as male gender, left-sided primary tumor and high proliferation index.

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1112P Modified TGR: A new strong radiological marker to accurately predict early response to PRRT in GEPNETs

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Background: To investigate the value of modified TGR (tumor growth rate) as radiological predictor of early response to PRRT, in GEPNET patients.

Methods: G1-G2 GEPNET patients treated with PRRT (177Lu-Oxodotreotide, 4 administrations, 7.4 GBq) at our centre from 04/2019 to 10/2020 were considered. Three CT/MRI scans per patient were collected: one performed within 3 months before PRRT, one interim evaluation after 2 PRRT and one within 4 months after the end of treatment to assess early response, according to RECIST1.1. All the scans were centrally re-evaluated by 2 dedicated radiologists. TGR was calculated in 2 ways: assuming the volume of lesions can be calculated applying the volume of a sphere formula (TGR_sphere, classical TGR formula, *Dromain, BMC 2019*) or the volume of an elliptical cylinder (TGR_ elliptical, new model). In both cases, to assess TGR, baseline versus interim evaluations were compared and the values were expressed as % increase/month. Patients were subdivided as responders (CR, PR, SD) and non-responders (PD), according to RECIST. Previous therapy lines were calculated as possible confounders. Fisher and K-Wallis test were applied to assess independence between response to treatment and patient characteristics. Logistic regression was performed to determine predictability of both TGR models, ROC analysis was applied to assess the performance of the 2 models and evaluate optimal TGR cut-off.

Results: Twenty-seven patients (12 males, 15 females, mean age 63.9, range 37-80) were evaluated. 15 (55.6%) were midgut, 12 (44.4%) foregut, 24 (88.8%). PRRT was applied in second line in 18 (66.6%), in third or further in 9 (33.4%). Considering RECIST, 4 (14.8%) were non-responders. Logist regression showed OR equal to 5.9 with AUC 0.95 (Sensitivity 75%, Specificity 95%) for TGR_elliptical model and OR 1.05 with AUC 0.75 (Sensitivity 25%, Specificity 75%), for TGR_spherical. The optimal cut-off value for progression prediction was 5.5% increase/month for TGR_elliptical (Sensitivity 100%, Specificity 86.4%) and 5.3%/month for TGR_sphere (Sensitivity 75%, Specificity 81.8%).

Conclusions: Interim TGR_elliptical is a strong and accurate predictor of early progression of GEPNET disease after PRRT. External validation is on course.

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